§ 1910.1033 Indoor Air Quality.

(a) Scope and application. (1) The provisions set forth in this section apply to all nonindustrial work environments.

(2) The provisions set forth in paragraph (e)(1) of this section, which address employee exposure to tobacco smoke, apply to all indoor or enclosed workplaces under OSHA jurisdiction.

(b) Definitions

Air contaminants refers to substances contained in the vapors from paint, cleaning chemicals, pesticides, and solvents, particulates, outdoor air pollutants and other airborne substances which together may cause material impairment to employees working within the nonindustrial environment.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Building-Related Illness describes specific medical conditions of known etiology which can be documented by physical signs and laboratory findings. Such illnesses include sensory irritation when caused by known agents, respiratory allergies, asthma, nosocomial infections, humidifier fever, hypersensitivity pneumonitis, Legionnaires' disease, and the signs and symptoms characteristic of exposure to chemical or biologic substances such as carbon monoxide, formaldehyde, pesticides, endotoxins, or mycotoxins.

Building systems include but are not limited to the heating, ventilation and air-conditioning (HVAC) system, the potable water systems, the energy management system and all other systems in a facility which may impact indoor air quality.

Designated person means a person who has been given the responsibility by the employer to take necessary measures to assure compliance with this section and who is knowledgeable in the requirements of this standard and the specific building systems servicing the affected building or office.

Designated smoking area means a room, in a non-work area, in which smoking of tobacco products is permitted.

Director means the Director, National Institute for Occupational Safety and Health (NIOSH) U.S. Department of Health and Human Services or designee.

Employer means all persons defined as employers by Sec. 3(5) of the Occupational Safety and Health Act of 1970 including employers (such as building owners or lessees) who control the ventilation or maintenance of premises where employees of other employers work.

HVAC system means the collective components of the heating, ventilation and air-conditioning system including, but not limited to, filters and frames, cooling coil condensate drip pans and drainage piping, outside air dampers and actuators, humidifiers, air distribution ductwork, automatic temperature controls, and cooling towers.

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Nonindustrial work environment means an indoor or enclosed work space such as, but not limited to, offices, educational facilities, commercial establishments, and healthcare facilities, and office areas, cafeterias, and break rooms located in manufacturing or production facilities used by employees. Non-industrial work environments do not include manufacturing and production facilities, residences, vehicles, and agricultural operations.

Renovation and remodeling means building modification involving activities that include but are not limited to: removal or replacement of walls, ceilings, floors, carpet, and components such as moldings, cabinets, doors, and windows; painting, decorating, demolition, surface refinishing, and removal or cleaning of ventilation ducts.

(c) Indoor air quality (IAQ) compliance program

(1) All employers with workplaces covered by paragraph (a)(1) of this section shall establish a written IAQ compliance program.

(2) The employer shall identify a designated person who is given the responsibility to assure implementation of the IAQ compliance program.

(3) Written plans for compliance programs shall include at least the following:

(i) A written narrative description of the facility building systems;

(ii) Single-line schematics or as-built construction documents which locate major building system equipment and the areas that they serve;

(iii) Information for the daily operation and management of the building systems, which shall include at least a description of normal operating procedures, special procedures such as seasonal start-ups and shutdowns, and a list of operating performance criteria including, but not limited to minimum outside air ventilation rates, potable hot water storage and delivery temperatures, range of space relative humidities, and any space pressurization requirements.

(iv) A general description of the building and its' function including but not limited to, work activity, number of employees and visitors, hours of operation, weekend use, tenant requirements and known air contaminants released in the space;

(v) A written maintenance program for the maintenance of building systems which shall be preventive in scope and reflect equipment manufacturer's recommendations and recommended-good-practice as determined by the building systems maintenance industry. At a minimum, the maintenance program shall describe the equipment to be maintained, and recommend maintenance procedures and frequency of performance.

(vi) A checklist for the visual inspection of building systems.

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(4) The following additional information, if available, shall be retained by the employer to assist in potential indoor air quality evaluations:
(i) As-built construction documents;
(ii) HVAC system commissioning reports;
(iii) HVAC systems testing, adjusting and balancing reports;
(iv) Operations and maintenance manuals;
(v) Water treatment logs; and
(vi) Operator training materials

(5) The employer shall establish a written record of employee complaints of signs or symptoms that may be related to building-related illness to include at least information on the nature of the illness reported, number of employees affected, date of employee complaint, and remedial action, if any, taken to correct the source of the problem.

(d) Compliance program implementation . Employers shall assure compliance with this section by implementing at least the following actions:

(1) Maintain and operate the HVAC system to assure that it operates up to original design specifications and continues to provide at least the minimum outside air ventilation rate, based on actual occupancy, required by the building code, mechanical code, or ventilation code applicable at the time the facility was constructed, renovated, or remodeled, whichever is most recent;

(2) Conduct building systems inspection and maintenance in accordance with paragraph (c);

(3) Assure that the HVAC system is operating during all work shifts, except during emergency HVAC repairs and during scheduled HVAC maintenance;

(4) Implement the use of general or local exhaust ventilation where housekeeping and maintenance activities involve use of equipment or products that could reasonably be expected to result in hazardous chemical or particulate exposures to employees working in other areas of the building or facility;

(5) Maintain relative humidity below 60% in buildings with mechanical cooling systems;

(6) The employer shall monitor carbon dioxide levels when routine maintanence under paragraph (d)(1) is done. When the carbon dioxide level exceeds 800 ppm, the employer shall check to make sure the HVAC system is operating as it should. If it is not, the employer shall take necessary steps to correct deficiencies if they exist.

(7) Assure that buildings without mechanical ventilation are maintained so that windows, doors, vents, stacks and other portals designed or used for natural ventilation are in operable condition;

(8) Assure that mechanical equipment rooms and any non-ducted air plenums or chases that transport air are

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maintained in a clean condition, hazardous substances are properly stored to prevent spillage, and asbestos, if friable, is encapsulated or removed so that it does not enter the air distribution system;

(9) Assure that inspections and maintenance of building systems are performed by or under the supervision of the designated person;

(10) Establish a written record of building system inspections and maintenance required to be performed under this section; and

(11) Assure that employees performing work on building systems are provided with and use appropriate personal protective equipment as prescribed in 29 CFR 1926, Subpart E, Personal Protective and Life Saving Equipment; 29 CFR 1926.52, Occupational Noise Exposure; 29 CFR 1910, Subpart I, Personal Protective Equipment; and 29 CFR 1910.95 Occupational Noise Exposure.

(12) Evaluate the need to perform alterations of the building systems to meet the minimum requirements specified in paragraph (d) of this section in response to employee complaints of building-related illnesses.

(13) Take such remedial measures as the evaluation shows to be necessary.

(e). Controls for specific contaminant sources.

(1) Tobacco smoke.

(i) In workplaces where the smoking of tobacco products is not prohibited, the employer shall establish designated smoking areas and permit smoking only in such areas;

(ii) The employer shall assure that designated smoking areas are enclosed and exhausted directly to the outside, and are maintained under negative pressure (with respect to surrounding spaces) sufficient to contain tobacco smoke within the designated area;

(iii) The employer shall assure that cleaning and maintenance work in designated smoking areas is conducted only when no smoking is taking place;

(iv) The employer shall assure that employees are not required to enter designated smoking areas in the performance of normal work activities;

(v) The employer shall post signs clearly indicating areas that are designated smoking areas; and

(vi) The employer shall post signs that will clearly inform anyone entering the workplace that smoking is restricted to designated areas.

(vii) The employer shall prohibit smoking within designated smoking areas during any period that the exhaust ventilation system servicing that area is not properly operating.

(2) Other indoor air contaminants.

(i) The employer shall implement measures such as the relocation of air intakes and other pathways of

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building entry, where necessary, to restrict the entry of outdoor air contaminants such as vehicle exhaust fumes, into the building;

(ii) When general ventilation is inadequate to control air contaminants emitted from point sources within workspaces the employer shall implement other control measures such as local source capture exhaust ventilation or substitution.

(3) Microbial contamination.

(i) The employer shall control microbial contamination in the building by routinely inspecting for, and promptly repairing, water leaks that can promote growth of biologic agents;

(ii) The employer shall control microbial contamination in the building by promptly drying, replacing, removing, or cleaning damp or wet materials; and

(iii) The employer shall take measures to remove visible microbial contamination in ductwork, humidifiers, other HVAC and building system components, or on building surfaces when found during regular or emergency maintenance activities or during visual inspection.

(4) Use of cleaning and maintenance chemicals, pesticides, and other hazardous chemicals in the workplace.

(i) The employer shall assure that these chemicals are used and applied according to manufacturers' recommendations; and

(ii) The employer shall inform employees working in areas to be treated with potentially hazardous chemicals, at least within 24 hours prior to application, of the type of chemicals intended to be applied.

(f) Air quality during renovation and remodeling.

(1) General. During renovation or remodeling, the employer shall assure that work procedures and appropriate controls are utilized to minimize degradation of the indoor air quality of employees performing such activities and employees in other areas of the building.

(2) Work plan development.

(i) Before remodeling, renovation, or similar activities are begun the employer shall meet with the contractor or individual(s) performing the work and shall develop and implement a work plan designed to minimize entry of air contaminants to other areas of the building during and after performance of the work; and

(ii) The work plan shall consider all of the following where appropriate:

(A) Requirements of this standard.

(B) Implementation of means to assure that HVAC

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systems continue to function effectively during remodeling and renovation activities.

(C) Isolation or containment of work areas and appropriate negative pressure containment;

(D) Air contaminant suppression controls or auxiliary air filtration/cleaning.

(E) Controls to prevent air contaminant entry into the HVAC air distribution system.

(3) Prior notification of employees who work in the building.

(i) The employer shall notify employees at least 24 hours in advance, or promptly in emergency situations, of work to be performed on the building that may introduce air contaminants into their work area;

(ii) Notification shall include anticipated adverse impacts on indoor air quality or workplace conditions.

(g) Employee information and training.

(1) The employer shall provide training for maintenance workers and workers involved in building system operation and maintenance which shall include at least the following:

(i) Training in the use of personal protective equipment (PPE) needed in operating and maintaining building systems;

(ii) Training on how to maintain adequate ventilation of air contaminants generated during building cleaning and maintenance; and

(iii) Training of maintenance personnel on how to minimize adverse effects on indoor air quality during the use and disposal of chemicals and other agents.

(2) All employees shall be informed of:

(i) The contents of this standard and its appendices; and

(ii) Signs and symptoms associated with building-related illness and the requirement under subparagraphs (d)(12) and (d)(13) of this section directing the employer to evaluate the effectiveness of the HVAC system and to take remedial measures to the HVAC system if necessary, upon receipt of complaints from employees of building-related illness.

(3) Availability of training material. The employer shall make training materials developed in response to paragraph (g), including this standard and its appendices, available for inspection and copying by employees, designated employee representatives, the Director, and the Assistant Secretary.

(h) Recordkeeping. (1) Maintenance records. The employer shall maintain inspection and maintenance records required to be established under paragraph (d), which shall include the specific remedial or maintenance actions taken, the name and affiliation of the individual performing the work, and the date of the inspection or maintenance activity.

(2) Written IAQ compliance program. The employer shall

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maintain the written compliance program and plan required to be established under paragraph (c) of this section.

(3) Employee complaints. The employer shall maintain a record of employee complaints of signs or symptoms that may be associated with building-related illness required to be established under paragraph (c)(5) of this section. These complaints shall be promptly transmitted to the designated person for resolution.

(4) Retention of records. The employer shall retain records required to be maintained under this section for at least the previous three years, except that records required to be maintained under paragraphs (h)(1) and (h)(2) of this section need not be retained for three years if rendered obsolete by the establishment and replacement of more recent records, or rendered irrelevant due to HVAC system replacement or redesign.

(5) Availability. The records required to be maintained by this paragraph shall be available on request to employees and their designated representative and the Assistant Secretary for examination and copying.

(6) Transfer of records.

Whenever the employer ceases to do business, records that are required to be maintained by paragraph (h) of this section shall be provided to and retained by the successor employer.

(i) Dates--(1) Effective date. This section shall become effective [INSERT DATE 60 DAYS FROM PUBLICATION]

2. Start-up dates.

(i) Employers shall have implemented all provisions of this standard no later than one year from the effective date.

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